GL338 – Practical activities for pupils attending school during extended periods of closure

If you are faced with a period of school closure where certain children are still attending school e.g. key worker/vulnerable children, science activities can be ideal, particularly if the groups of children being supervised are of mixed age groups and/or from different schools.

However, if you are the teacher in charge, you:

- may have limited knowledge of the capabilities of the children themselves (they are not your normal class or even from your school); and
- will have children present with widely differing capabilities reflecting their different age/experience.

It is **NOT** appropriate to carry out standard secondary school science activities during a period of school closure – particularly if the groups of children being supervised are of mixed age groups and/or from different schools.

In these situations it is likely that there will be:-

- No technical support – Teachers MUST not 'help themselves' to chemicals from the chemical store. During a school closure it is vital that all hazardous materials remain safe and secure at all times.
- Limited knowledge of the practical skills of the pupils themselves
- No access to immediate remedial measures or First Aid
- No suitable disposal route for surplus chemicals and or the products of reactions

This does not mean that there are no worthwhile practical activities that could be safely carried out in these circumstances.

With this in mind CLEAPSS has reviewed its range of practical procedures intended for use in primary schools.

These activities are:

- Intrinsically safer
- Use resources available around the home or readily available from high street stores
- Do not require specialist disposal arrangements

They contain excellent science and can easily be used creatively by teachers to explore often quite complex underlying scientific ideas – for example through the addition of more challenging questions or a research task.

How to use these resources

Remember even though the resources are written very clearly, they are intended for use by a qualified teacher and not a parent or other member of the general public. As a teacher you will need to decide how best to use the activity and indeed if the activity is suitable and safe for the group of pupils you are supervising.

Do's and don'ts

- Don't give pupils access to the CLEAPSS website
- Don't give the practical guide directly to pupils – it is not intended to be a pupil worksheet
- Do review the activity in the light of what you know about the pupils' capabilities
- Do add additional questions to link the activity to the learning you wish for the pupils

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List of activities

Suitable Activities

CLEAPSS Code	Title of Guide	Link to guide	Any additional comments
P095	Making a wormery and observing worms	http://primary.cleapss.org.uk/Resource/P095-Making-a-wormery-and-observing-worms.aspx	-
P090	Seeing stars – making a constellation viewer	http://primary.cleapss.org.uk/Resource-File/P090-Seeing-stars-making-a-constellation-viewer.pdf	-
P087	Flappy bat	http://primary.cleapss.org.uk/Resource/P087-Flappy-bat.aspx	-
P085	Making and successfully throwing a boomerang	http://primary.cleapss.org.uk/Resource/P085-Making-and-successfully-throwing-a-boomerang.aspx	-
P084	Overflow - Using water displacement to measure volume	http://primary.cleapss.org.uk/Resource/P084-Overflow-using-water-displacement-to-measure-volume.aspx	-
P083	Making trace fossils	http://primary.cleapss.org.uk/Resource/P083-Making-trace-fossils.aspx	-
P075	Absorbent materials	http://primary.cleapss.org.uk/Resource/P075-Absorbent-materials.aspx	-
P077	Double bubble	http://primary.cleapss.org.uk/Resource/P077-Double-bubble.aspx	-
P071	Blast Off!	http://primary.cleapss.org.uk/Resource/P071-Blast-off.aspx	-
P070	Making ice cream without a freezer	http://primary.cleapss.org.uk/Resource/P70-Making-ice-cream-without-a-freezer.aspx	-
P068	Choosing and using colour	http://primary.cleapss.org.uk/Resource/P068-Choosing-and-using-colour.aspx	-
P067	Pop up spring chick	http://primary.cleapss.org.uk/Resource/P067-Pop-up-spring-chick.aspx	-
P056	How does Vitruvian Man stand up today?	http://primary.cleapss.org.uk/Resource/P056-How-does-Vitruvian-Man-stand-up-today.aspx	-
P053	Make your own freshwater food chain	http://primary.cleapss.org.uk/Resource/P053-Make-your-own-freshwater-food-chain-mobile.aspx	-
P054	Freshwater food chains and food web resource	http://primary.cleapss.org.uk/Resource/P054-Freshwater-food-chains-and-food-web-resource.aspx	-
P055	Hatching spring chick	http://primary.cleapss.org.uk/Resource/P055-Hatching-spring-chick.aspx	-

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P049	Glitter Germs	http://primary.cleapss.org.uk/Resource/P049-Glitter-germs.aspx	-
P001	Investigating indicators	http://primary.cleapss.org.uk/Resource/P001-Investigating-indicators.aspx	-
P025	Vinegar and bicarbonate balloons	http://primary.cleapss.org.uk/Resource/P025-Vinegar-and-bicarbonate-balloons.aspx	Can be a little messy
P024	Sunshine absorbency	http://primary.cleapss.org.uk/Resource/P024-Sunshine-absorbency.aspx	-
P005	Investigating soaps and detergents	http://primary.cleapss.org.uk/Resource/P005-Investigating-soaps-and-detergents.aspx	-
P089	Dissolving jelly	http://primary.cleapss.org.uk/Resource/P089-Dissolving-jelly.aspx	-
P073	Lights on lights off	http://primary.cleapss.org.uk/Resource/P073-Lights-on-lights-off.aspx	-
P072	Straw shooter rocket	http://primary.cleapss.org.uk/Resource/P072-Straw-shooter-rocket.aspx	-
P066	Making bath bombs	http://primary.cleapss.org.uk/Resource/P066-Making-bath-bombs.aspx	-
P058	Density cocktail	http://primary.cleapss.org.uk/Resource/P058-Density-cocktail.aspx	-
P052	Floating liquids	http://primary.cleapss.org.uk/Resource/P052-Floating-liquids.aspx	-
P023	Steady hand game	http://primary.cleapss.org.uk/Resource/P023-Steady-hand-game.aspx	-
P043	Using UV bead bracelets to study light	http://primary.cleapss.org.uk/Resource/P043-Using-UV-bead-bracelets-to-study-light.aspx	-
P040	Testing food samples for starch	http://primary.cleapss.org.uk/Resource/P040-Testing-food-samples-for-starch.aspx	-
P034	Separating inks simple method	http://primary.cleapss.org.uk/Resource/P034-Separating-inks-simple-method.aspx	-
P014	Separating felt pen ink colours	http://primary.cleapss.org.uk/Resource/P014-Separating-felt-pen-ink-colours.aspx	-
P078	Glue from milk	http://primary.cleapss.org.uk/Resource/P078-Glue-from-milk.aspx	Likely to be messy
P081	Quick and easy cakes	http://primary.cleapss.org.uk/Resource/P081-Quick-and-easy-cakes.aspx	Needs access to a microwave. MUST not be done in a lab
P079	Inseparable books	http://primary.cleapss.org.uk/Resource/P079-Inseparable-books.aspx	Needs good classroom management

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P076	Balloon Kebabs	http://primary.cleapss.org.uk/Resource/P076-Balloon-kebabs.aspx	Needs good classroom management
P074	Lava lamp	http://primary.cleapss.org.uk/Resource/P074-Lava-lamp.aspx	Likely to be messy and needs careful management of waste. Do not carry out on large scale or with large groups.
P050	Iron for breakfast	http://primary.cleapss.org.uk/Resource/P050-Iron-for-breakfast.aspx	Needs good supervision of neodymium magnets
P042	Slime time	http://primary.cleapss.org.uk/Resource/P042-Slime-time.aspx	Do not carry out on large scale. Do NOT let pupils take it home.
P002	Investigating heating and melting	http://primary.cleapss.org.uk/Resource/P002-Investigating-heating-and-melting.aspx	Do NOT let pupils eat the food used. Care is needed with the heat packs.

Unsuitable Activities

CLEAPSS Code	Title of Guide
P086	Spinning spirals
P080	Fire writing
P064	Pond dipping
P057	Vinegar and bicarbonate fire extinguisher demonstration
P021	Looking closely at the parts of a flower
P035	Making a light-up greetings card using copper tape circuits
P006	Growing fungi on food
P018	Investigating burning

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Using CLEAPSS videos

CLEAPSS has a You Tube channel https://www.youtube.com/user/CLEAPSS that features a range of videos many of which show practical activities. Below is a list of videos which we feel are suitable for pupils to watch.

Whilst these are intended to show teacher how to carryout activities successfully a number of them could be used in place of a demonstration. Please note it is important that pupils do not attempt to repeat the activity at home – you need to be careful to emphasise this point to your pupils.

Chemistry	
Microscale copper oxide reduction	https://www.youtube.com/watch?v=clAyMB_OMt8&t=17s
Carbon reduction of Copper Oxide	https://www.youtube.com/watch?v=uxjp4XbsOfU&t=84s
Finding the formula of magnesium oxide	https://www.youtube.com/watch?v=d8QWXCaXfSs&t=89s
Finding the formula of hydrated Copper Sulfate	https://www.youtube.com/watch?v=3b1V38YV0wo
Blast furnace in a ignition tube	https://www.youtube.com/watch?v=aLDZi-a9YTg&t=14s
Chemiluminescence	https://www.youtube.com/watch?v=jMPTOz_Z6wA&t=3s
The Ammonia Fountain	https://www.youtube.com/watch?v=17-SMYFJ2Aw&t=6s
Using the CLEAPSS Conductivity indicator	https://www.youtube.com/watch?v=JxXDKk6H-NQ
Marble chip project	https://www.youtube.com/watch?v=h8eslt3EGmY&t=8s
Distillation techniques	https://www.youtube.com/watch?v=0Pwsuk1Q4gA&t=125s
Distillation Part Two	https://www.youtube.com/watch?v=v9mWeu58V0c&t=14s
Oil Distillation	https://www.youtube.com/watch?v=Lra8iaqfbnU&t=1s
Cracking Alkanes	https://www.youtube.com/watch?v=AajLtkJxPk0&t=4s
The Microscale Thermite Reaction	https://www.youtube.com/watch?v=1VVVICxbufY
Heating calcium carbonate - Suck Back	https://www.youtube.com/watch?v=RLL5rT_DeKc
The preparation of 2-chloro-2-methylpropane	https://www.youtube.com/watch?v=-l2gg3TVn0E
Relative Molar Mass of a Volatile Liquid	https://www.youtube.com/watch?v=LcCCVsr1LW4
Electrostatics and magnetism in chemistry	https://www.youtube.com/watch?v=jJmduBDr8Y8
Making Iodine Chlorides	https://www.youtube.com/watch?v=N89vQex7doM
Microscale production of Ozone	https://www.youtube.com/watch?v=Jrd_qQWl8b0
Microscale Electrolysis of Copper Chloride	https://www.youtube.com/watch?v=KvW-g1FQV9E
Electrolysis of Molten Salts	https://www.youtube.com/watch?v=LwwmRP8Zpaw&t=25s
Zinc plating	https://www.youtube.com/watch?v=qG6pnr1Ywc8
Propene preparation	https://www.youtube.com/watch?v=V66u-TPgKJ8&t=96s
Microscale Hydrogenation	https://www.youtube.com/watch?v=ooUbjzdXAsg
Ammonia HCl Diffusion - Microscale (Student version)	https://www.youtube.com/watch?v=XV8LojqCz-A
Ammonia & HCl Diffusion Demonstration	https://www.youtube.com/watch?v=b8f6dDnm_8E&t=5s
Precipitates Diffusing	https://www.youtube.com/watch?v=oizwWsm43lY
Polymerisation - A new method	https://www.youtube.com/watch?v=t-YasbKtZP0
Making soap the reduced scale way	https://www.youtube.com/watch?v=nkF712_NmeM
Iron Sulfur Reaction	https://www.youtube.com/watch?v=klgUCRbxyMk
Smoking Machines	https://www.youtube.com/watch?v=WTgUDbvUm3M
Microsale Hoffman	https://www.youtube.com/watch?v=3yj1ZazuYRg
Copper Sulfate Microscale	https://www.youtube.com/watch?v=L1mI4IHQJsc
Copper Sulfate Preparation	https://www.youtube.com/watch?v=PTa8tkJ8rv0
Microscale Displacement Reactions	https://www.youtube.com/watch?v=sk3ZolhPyWM

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Physics	
Measuring the speed of sound	https://www.youtube.com/watch?v=UDs_DLYBrAc&t=8s
Ringing bell jar experiment	https://www.youtube.com/watch?v=LRvLtlrAExk
Reducing Air Pressure Effects on Water Boiling Point	https://www.youtube.com/watch?v=dzSGP0lx9yw
Bell Jar Experiments Showing Boyles Law	https://www.youtube.com/watch?v=7G_idbt6Yeg&t=26s
Using the Van de Graaff generator	https://www.youtube.com/watch?v=hl4uukOUafw&t=4s
Investigating the efficiency of a lamp using the specific heat capacity of water	https://www.youtube.com/watch?v=f_9LBSH1Gjc
Gas Laws - Volume Temperature Law Charles' Law	https://www.youtube.com/watch?v=Y1NcYJc8_6g
Gas Law Boyle's Law	https://www.youtube.com/watch?v=GQdjBmMi7KE
Using a demountable transformer	https://www.youtube.com/watch?v=o__rMmZp4TY
Measuring the half life of Radon	https://www.youtube.com/watch?v=hFDzVHmxiTY
Chladni Plate	https://www.youtube.com/watch?v=jNerQRoQ3AI
Electric field demo - with castor oil and semolina seeds	https://www.youtube.com/watch?v=Fhp63yvJAHs
Rubens Tube	https://www.youtube.com/watch?v=pPIwQPBjodI
Biology	
Photosynthesis in chloroplasts (Hill Reaction)	https://www.youtube.com/watch?v=i9_h3TSIJzM
Chromatography of leaf chloroplast	https://www.youtube.com/watch?v=1ZSgwonXhkU
Aseptic inoculation of an agar plate	https://www.youtube.com/watch?v=dqr986cjeqY
Sterilising an inoculation loop by flaming	https://www.youtube.com/watch?v=LbNkJ6UKNXY
Washing your hands for microbiology	https://www.youtube.com/watch?v=FC3bt2AM5pg
Using swabs to sample environmental microbes	https://www.youtube.com/watch?v=wMJUviyaMBE
Sterile opening of screw top bottles	https://www.youtube.com/watch?v=jqbfK_9Uh8w
Setting up a respirometer (Aerobic)	https://www.youtube.com/watch?v=Q7i4BgRdRnc&t=7s

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